CLAIMS

What is claimed is:

1. A ball valve for controlling fluid flow comprising:

a body;

an inlet port and an outlet port;

a ball within said body having a generally cylindrical passage therethrough, the cylindrical passage having a size proportional to volumetric fluid flow rate for fluid communication between said inlet port and said outlet port, the ball further including:

a first opening in the cylindrical passage, said first opening generally circular in shape having a size generally equal to said size of said cylindrical passage; and

a second opening in said cylindrical passage defined by an inner and an outer wall of said ball, the second opening smaller in size than said first opening, said inner wall having a generally curved shaped to reduce friction of fluid flow therethrough; and

a valve stem having a position proportional to fluid flow rate through the valve, the valve stem connected to said ball for rotating said ball to control the fluid flow rate through the valve, wherein the valve stem proportional to the fluid flow rate can be read by a user thereof.

2. The ball valve of claim 1, wherein said second opening is a slot.

3. The ball valve of claim 1, further comprising a means for determining a magnitude of said fluid flow rate through the valve based on said valve stem position.

4. The ball valve of claim 1, further comprising a valve position indicator connected to the valve stem.

5. The ball valve of claim 4, wherein said valve position indicator comprises hash marks to identify valve position.

6. The ball valve of claim 1, wherein said inner wall has a partially spherical shape.

7. The ball valve of claim 1, further comprising sealing rings on opposing sides of said ball to prevent leakage past said ball when the ball valve is in a shut position.

8. The ball valve of claim 1, further comprising a stem lock nut to secure said valve stem to said body.

9. The ball valve of claim 1, further comprising a ball retaining fitting to secure said ball in said body.

10. The ball valve of claim 1, further comprising a handle connected to said valve stem for positioning the valve between an open position, the shut position, and a plurality of intermediate positions.

11. The ball valve of claim 10, further comprising:

an open stop for preventing the stem from rotating past the open position and for securing the stem in the open position; and

a closed stop for preventing the stem from rotating past the closed position.

12. The ball valve of claim 10, further comprising a handle and plate lock nut to secure said handle to said valve stem.

13. A rotational element in a valve, having a cylindrical flow passage about an axis, the rotational element used to control fluid communication in a ball valve comprising:

a first opening in the flow passage defined by removing a cross section of the rotational element perpendicular to said axis of said cylindrical flow passage; and

a second opening in the flow passage smaller in size than the first opening and defined by an inner and outer wall of the rotational element, wherein said inner wall of said rotational element comprises a curved shape.

14. The rotational element of claim 13, wherein the second opening is a slot.

15. The rotational element of claim 13 wherein the second opening comprises a plurality of orifices.

16. The rotational element of claim 13, wherein said rotational element is spherical in shape.

17. The rotational element of claim 13, wherein said rotational element is cylindrical in shape.

18. The rotational element of claim 13, wherein said rotational element is made from plastic material.

19. The rotational element of claim 13, wherein said rotational element is made from metal material.

20. The rotational element of claim 13 further comprising a notch carved out of said rotational element, suitable to engage a valve stem.

21. A method of metering a throttle valve between an inlet port and an outlet port based on valve position, the method comprising:

providing a throttle valve such that flow varies in a linear manner as the valve is operated over a range from open to shut;

determining a flow rate through the valve when the valve is fully open;

throttling the valve and reducing flow through a plurality of intermediate positions;

determining a flow rate in the plurality of intermediate positions; and

recording the flow rate corresponding to when the valve is fully open and each intermediate valve position so a valve operator could determine the flow rate based on valve position.

22. The method metering a valve of claim 21, further comprising providing position indication on the valve.

23. The method of metering a valve of claim 22, further comprising providing volumetric flow rate determination on the valve.